

Elecsim and HLA

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Elecsim Is

- Internet-Based Conference

<http://www.mystech.com/~smithr/elecsim.html>

- Annual Web Event

- Focused on Training Simulation

(HLA, DIS, ALSP, Others)

- Directed at a Global Audience

- Free to Access

- Supported by Professional Societies

(SCS, InfORMS)

Elecsim Content

- 1994 - Constructive Simulations
- 1995 - Scalability in Simulation
- 1996 - Interoperability in Simulation
- 1997 - In Planning Stages
 - » Simulation Architectures
 - » System Reuse
 - » Platform Independence

Analytical Determination of Interoperability Between Simulations (Harmon, Advanced Telecom.)

- Beginning of a theory to analytically describe the phenomenon of interoperability between distributed simulations
- Interoperability Inconsistencies:
 - » Accuracy Timing
 - » Sequencing Registration
- Paper consists of 48 mathematical definitions and 29 propositions that support 13 theorems regarding simulation interoperability

Use of Computer Image Generators in Distributed Simulation Exercises (Novak and Jennings, MITRE)

- Evaluates the effects of different IGs on a distribute “fair fight”
- Defines characteristics of “fair fight”
- Concludes that a fair fight requires:
 - » Homogeneous IGs
 - » Identical Visual Databases
 - » Single Level-of-Detail for Entire Exercise
- Unacceptable constraints imply that we must exercise in “unfair” environment
- DOD should establish standards for IGs

Internal HLA Compliance (Vasend, Logicon)

- Proposes enhanced version of RTI as simulation kernel
- Additional capabilities include support for:
 - » Private federations
 - » Cooperative federation services
 - » Translation services
 - » Extended RTI capabilities
- Define common SOM design process
- Define a performance standard for each RTI service

Foundations of a New DIS Aggregate Protocol

(Foss and Fanceschini, IST)

- Outlines major design decisions for DIS aggregate protocol
- Objectives:
 - » Represent useful groupings
 - » Reduce network traffic
 - » Allow aggregates to change state
- Describes 6 design decisions
- Describes 5 PDUs that support aggregation

Multiple Level Federation Issues (Bundy and Seidel, MITRE)

- Describes results of federation experiment using AWSIM/R, AFSAF, and J-MASS
- Model Communication
 - » Layered and Informal
- Hand-off Protocols
 - » Exchange of control
- Object Updates
 - » Information push and pull

HLA Testing: Separating Compliance from Interoperability (Loper, GTRI)

- Testing must address at least two steps in interoperability: data exchange and data understanding
- Compliance Testing
 - » HLA Federate Compliance
 - » HLA Federation Compliance
- Federation Testing
 - » Application and Integration Testing (OIP)
 - » Functional and Scenario Testing (End-to-End)

MAGTF Tactical Wargame Simulation (MTWS)

Interoperability Issues

(Blais, Visicom Labs)

- Interoperability with constructive simulations via ALSP
 - » Geographic unit control with CBS
 - » Adjudication based on interaction event
- Interoperability with virtual simulators via DIS
 - » Disaggregation process
 - » ModSAF controllers
- Interoperability with C4I systems via JMCIS
 - » Convert to JMCIS user interface
 - » Process tactical messages
 - » Initialize system from JMCIS

Fuzzy Sets and Neural Networks Applied in Multi-User Networked Virtual Environments

(Silva, Univ. Erlangen-Nurnberg)

- Proposes Fuzzy Cognitive Maps (FCMs) as predictive replacement for dead reckoning algorithms
- Complex behavior can not be defined with conventional mathematics
- FCMs can approximate continuous functions and make accurate predictions
- Same techniques can be extended to combat planning and coordination among multiple objects

1997 Volunteers

- 1997 Conference Team Needed
- Quality Standard Goes Up Every Year

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